

# 2008 Cray XT Quad-core Workshop at NCCS/ORNL

## Agenda

### October 15 -17, 2008

<b>October 15</b>		
8:00	Continental Breakfast: Registration, networking to discuss projects for the first day's program, presentation set-up for speakers; session chairs to finalize introductions.	
8:30	Welcome and Introduction to the Workshop	Jim Hack, NCCS
8:45	Introduction to NCCS LCF XT System	Don Frederick, NCCS
9:00	Introduction to NICS Kraken XT System	Bruce Loftis, NICS
9:15	Cray Roadmap	John Levesque, Cray
9:45	Architecture of the AMD Quad Core CPUs <ul style="list-style-type: none"> <li>• Architectural features that the application developer needs to know <ul style="list-style-type: none"> <li>a. Functional Units</li> <li>b. Cache</li> <li>c. Memory Interface</li> </ul> </li> <li>• Issues using Quad core node in XT4 MPP</li> </ul>	Brian Waldecker, AMD
10:45	Break	
11:00	Cray XT Architecture: detailed description of Cray XT4 and XT5 systems, including interconnect and node structures	John Levesque, Cray
12:00	Working Catered Lunch: <b><i>"GPTL: A tool for characterizing parallel and serial application performance"</i></b>	James Rosinski, NCCS
1:00	Using Craypat to profile applications and measure application performance on the XT4/XT5 Presentation of First User Assignment: obtain profiles of your application running on the XT4-Quad Core	Luiz DeRose, Cray
2:00	Using NCCS/NICS Cray XT4 Systems <ul style="list-style-type: none"> <li>a. Logging onto the system</li> <li>b. Compiling applications</li> <li>c. Running jobs batch &amp; interactive</li> </ul>	Rebecca Hartman-Baker, NCCS  Lonnie Crosby, NICS
2:30	Break	
2:45	Continue working on assignment, obtain profiles of user application running on the XT4-Quad Core	
5:30	NCCS Poster Session	Bldg. 5700, Court of Flag Area
6:30	Adjourn	

October 16		
8:00	Continental Breakfast: Continue working on previous day's assignment to obtain profiles of applications running on the NCCS Cray XT4-Quad Core.	
8:30	Using PGI Compilers	Brent Leback, PGI
9:45	Optimization for the Cray XT4, Pt. I <ul style="list-style-type: none"> <li>• Optimization techniques that the application developer needs to know</li> <li>• Vectorization</li> <li>• Blocking for cache</li> <li>• Using prefetch directives</li> </ul>	Jeff Larkin, Cray
10:30	Break	
10:45	Optimizations for the Cray XT4, Pt. II	Jeff Larkin, Cray
11:15	The Cray Scientific Libraries	Adrian Tate, Cray
12:00	Working Catered Lunch: <b><i>"Doing Density-Functional Theory on the XT4"</i></b>	Scott Thornton, University of Tennessee, Knoxville
1:00	Using MPI on the XT4	John Levesque, Cray
2:15	Hands-on Session: Second Day afternoon assignment: Optimize your application for node performance	
3:00	Break	
3:15	Hands-on Session continued: Second Day afternoon assignment: Optimize your application for node performance	
5:00	Adjourn	

October 17		
8:00	Continental Breakfast: Continue working on previous day's assignment to optimize your application for node performance	
8:30	OpenMP for Cray XT Systems	
10:30	Break	
10:45	Using I/O on Cray XT System	NCCS Staff
11:30	Introduction to the ADIOS I/O Library	Scott Klasky, NCCS
12:00	Working Catered Lunch: <b><i>"Extreme scaling of turbulence simulations on the Cray XT4"</i></b>	P. K. Yeung, Georgia Tech
1:00	Hands-on Session: Third Day Afternoon Assignment: Optimization your application across the MPP	
2:30	Break	
2:45	Hands-on Session continued: Third Day Afternoon Assignment: Optimization your application across the MPP	
5:00	Adjourn	